WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a nucleotide sequence having at least a 90% sequence identity to a nucleic acid fragment capable of encoding amino acids 1 to 9 of SEQ ID NO:2 .

2. An isolated nucleic acid molecule comprising at least 12 sequential nucleotides from nucleotides 1 to 1038 of SEQ ID NO:1.

3. An isolated nucleic acid molecule having at least a 70% sequence identity to SEQ ID NO:1 from nucleotide 1 to 1038 of SEQ ID NO:1.

4. An isolated nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:1.

5. An isolated nucleic acid molecule encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:2.

6. An expression vector comprising the nucleic acid molecule of claim 5.

7. A recombinant host cell containing the vector of claim 6.

8. A substantially purified polypeptide having S2 serine protease activity, comprising an amino acid

sequence having at least a 90% identity to amino acid 1 to 9 of SEQ ID NO:2.

9. The polypeptide of claim 8 comprising an amino acid sequence of SEQ ID NO:2.

10. A substantially purified polypeptide having S2 serine protease activity and comprising the amino acid sequence corresponding to amino acids 1 to 9 of SEQ ID NO:2 or an amino acid sequence wherein one of amino acids 1 to 9 is substituted with a conserved amino acid substitution.

11. An antibody that selectively binds to a polypeptide having S2 serine protease activity and comprising an amino acid sequence having at least a 90% identity to amino acids 1 to 9 of SEQ ID NO:2.

12. An antibody that selectively binds to a polypeptide having S2 serine protease activity and comprising the amino acid sequence corresponding to amino acids 1 to 9 of SEQ ID NO:2 or an amino acid sequence wherein one of amino acids 1 to 9 is substituted with a conserved amino acid substitution.

13. A method of identifying a compound that increases or decreases the biological activity of a protein, comprising the steps of:

(a) contacting a test compound with a protein comprising an amino acid sequence having at least a 90% identity to amino acid 1 to 9 of SEQ ID NO:2; and
(b) determining whether the test compound increases or decreases the biological activity of the protein.

14. A method of identifying a compound that increases or decreases the protease activity of a protein, comprising the steps of:
(a) contacting a test compound with a sample comprising an S2 protease, the protease comprising an amino acid sequence having at least a 90% identity to amino acid 1 to 9 of SEQ ID NO:2 and with a substrate that is cleavable by the protein; and
(b) determining whether the test compound increases or decreases the cleavage of said substrate by the protein.

15. The method of claim 14 wherein said sample comprises a substantially purified protein.

16. The method of claim 14 wherein said sample comprises a cell lysate.

17. The method of claim 14 wherein said sample comprises a cell.

18. A method of identifying a compound that binds to a protein, comprising the steps of:
(a) incubating a test compound with a sample comprising

a protein, the protein comprising an amino acid sequence having at least a 90% identity to amino acid 1 to 9 of SEQ ID NO:2 and a labeled ligand for the protein;

(b) separating the protein from unbound labeled ligand; and

(c) identifying a compound that inhibits ligand binding to the subunit by a reduction in the amount of labeled ligand binding to the protein.

18. The method of claim 17 wherein the sample comprises a substantially purified protein.

19. The method of claim 17 wherein the sample comprises a cell lysate.

20. The method of claim 17 wherein the sample comprises a cell.